CLAIMED IS:

1. A collision predicting apparatus for predicting whether an own vehicle and a collision target will collide, characterized by comprising:

    subject target detection means for detecting a plurality of subject targets that exist in a course of the own vehicle and that have a possibility of colliding with the own vehicle;

    relative quantity detection means for detecting a relative quantity between the own vehicle and each of the subject targets detected by the subject target detection means;

    collision time calculation means for predicting and calculating a collision time of each of the subject targets preceding a collision with the own vehicle, by using the relative quantity between the own vehicle and each of the subject targets detected by the relative quantity detection means;

    collision subject target selection means for selecting a collision subject target having a high possibility of colliding with the own vehicle based on at least the collision time of each of the subject targets calculated by the collision time calculation means; and

    collision prediction means for predicting a collision between the collision subject target selected by the collision subject target selection means and the own vehicle, by using the collision time of the collision subject target.

2. The collision predicting apparatus according to claim 1, wherein the collision subject target selection means selects, as the collision subject target, a subject target that has a shortest collision time among the collision times of the subject targets calculated by the collision time calculation means.

3. The collision predicting apparatus according to claim 1 or 2, wherein the collision subject target selection means resets a selection of the collision subject target already selected, and newly selects the collision subject target.

4. The collision predicting apparatus according to any one of claims 1 to 3, wherein the collision subject target selection means selects the collision subject target based on the collision time and predetermined information that is used by the subject target detection means to detect a subject target.

5. The collision predicting apparatus according to claim 4, wherein the predetermined

information is extrapolation flag information that is output if the subject target is temporarily not detected by the subject target detection means.

6. The collision predicting apparatus according to claim 5, wherein the collision subject target selection means selects, as the collision subject target, a subject target in which the number of times of output of the extrapolation flag information is within a predetermined range.

7. The collision predicting apparatus according to any one of claims 1 to 6, characterized by further comprising collision time correction means for correcting the collision time predicted and calculated by the collision time calculation means using a predetermined relative quantity among the relative quantities detected by the relative quantity detection means.

8. The collision predicting apparatus according to claim 7, wherein the collision time correction means corrects the collision time by setting the collision time at a predetermined maximum value if it is determined that the predetermined relative quantity used is greater than a pre-set value.

9. The collision predicting apparatus according to claim 8, wherein the predetermined relative quantity used by the collision time correction means is a quantity of offset of the subject target from a center line of the own vehicle which extends in a direction that coincides with a traveling direction of the own vehicle.

10. The collision predicting apparatus according to any one of claim 1 to 9, wherein the relative quantity detected by the relative quantity detection means includes at least one relative quantity selected from the group consisting of a relative distance of each subject target, a relative velocity of each subject target, and a direction of existence of each subject target from the own vehicle.

11. A collision predicting apparatus comprising:

    a subject target detector portion that detects a plurality of subject targets which exist in a course of the own vehicle and which have a possibility of colliding with the own vehicle;

a relative quantity detector portion that detects a relative quantity between the own vehicle and each of the subject targets detected by the subject target detector portion;

a collision time calculator portion that predicts and calculates a collision time of each of the subject targets preceding a collision with the own vehicle, by using the relative quantity between the own vehicle and each of the subject targets detected by the relative quantity detector portion;

a collision subject target selector portion that selects a collision subject target having a high possibility of colliding with the own vehicle based on at least the collision time of each of the subject targets calculated by the collision time calculator portion; and

a collision predictor portion that predicts a collision between the collision subject target selected by the collision subject target selector portion and the own vehicle, by using the collision time of the collision subject target.

12.   The collision predicting apparatus according to claim 11, wherein the collision subject target selector portion selects, as the collision subject target, a subject target that has a shortest collision time among the collision times of the subject targets calculated by the collision time calculator portion.

13.   The collision predicting apparatus according to claim 11, wherein the collision subject target selector portion resets a selection of the collision subject target already selected, and newly selects the collision subject target.

14.   The collision predicting apparatus according to claim 11, wherein the collision subject target selector portion selects the collision subject target based on the collision time and predetermined information that is used by the subject target detector portion to detect a subject target.

15.   The collision predicting apparatus according to claim 14, wherein the predetermined information is extrapolation flag information that is output if the subject target is temporarily not detected by the subject target detector portion.

16.   The collision predicting apparatus according to claim 15, wherein the collision subject target selector portion selects, as the collision subject target, a subject target in

which the number of times of output of the extrapolation flag information is within a predetermined range.

17.   The collision predicting apparatus according to claim 11, further comprising collision time corrector portion that corrects the collision time predicted and calculated by the collision time calculator portion using a predetermined relative quantity among the relative quantities detected by the relative quantity detector portion.

18.   The collision predicting apparatus according to claim 17, wherein the collision time corrector portion corrects the collision time by setting the collision time at a predetermined maximum value if it is determined that the predetermined relative quantity used is greater than a pre-set value.

19.   The collision predicting apparatus according to claim 18, wherein the predetermined relative quantity used by the collision time corrector portion is a quantity of offset of the subject target from a center line of the own vehicle which extends in a direction that coincides with a traveling direction of the own vehicle.

20.   The collision predicting apparatus according to claim 1, wherein the relative quantity detected by the relative quantity detector portion includes at least one relative quantity selected from the group consisting of a relative distance of each subject target, a relative velocity of each subject target, and a direction of existence of each subject target from the own vehicle.

21.   A collision predicting method comprising the steps of:
    detecting a plurality of subject targets that exist in a course of the own vehicle and that have a possibility of colliding with the own vehicle;
    detecting a relative quantity between the own vehicle and each of the subject targets detected;
    predicting and calculating a collision time of each of the subject targets preceding a collision with the own vehicle, by using the relative quantity between the own vehicle and each of the subject targets detected;
    selecting a collision subject target having a high possibility of colliding with the own

vehicle based on at least the collision time of each of the subject targets calculated; and

predicting a collision between the collision subject target selected and the own vehicle, by using the collision time of the collision subject target.

22.   The collision predicting method according to claim 21, wherein a subject target that has a shortest collision time among the collision times calculated with regard to the subject targets is selected as the collision subject target.

23.   The collision predicting method according to claim 21, wherein a selection of the collision subject target already selected is reset, and the collision subject target is newly selected.

24.   The collision predicting method according to claim 21, wherein the collision subject target is selected based on the collision time and predetermined information that is used to detect a subject target.

25.   The collision predicting method according to claim 24, wherein the predetermined information is extrapolation flag information that is output if the collision subject target is temporarily not detected.

26.   The collision predicting method according to claim 25, wherein a subject target in which the number of times of output of the extrapolation flag information is within a predetermined range is selected as the collision subject target.

27.   The collision predicting method according to claim 21, further comprising the step of correcting the collision time predicted and calculated by using a predetermined relative quantity among the relative quantities detected.

28.   The collision predicting method according to claim 27, wherein the collision time is corrected by setting the collision time at a predetermined maximum value if it is determined that the predetermined relative quantity used is greater than a pre-set quantity.

29.   The collision predicting method according to claim 28, wherein the predetermined

relative quantity is a quantity of offset of the subject target from a center line of the own vehicle which extends in a direction that coincides with a traveling direction of the own vehicle.

30. The collision predicting method according to claim 21, wherein the relative quantity detected includes at least one relative quantity selected from the group consisting of a relative distance of each subject target, a relative velocity of each subject target, and a direction of existence of each subject target from the own vehicle.